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# MONTHLY NOTICES

OF THE

# ROYAL ASTRONOMICAL SOCIETY.

VOL. LXV. MAY 12, 1905. No. 7

W. H. MAW, Esq., PRESIDENT, in the Chair.

Scriven Bolton, 24 Kensington Terrace, Hyde Park, Leeds ;
Bahne Bonniksen, 16 Norfolk Street, Coventry ;
Edwin Turner Cottingham, The Limes, Thrapston ;
William George Hooper, Wiverton House, Musters Road, West Bridgford, Nottingham ;
Percy Merivale Marshall, Filey House, Livingstone Road, Scarborough ; and
Karl Pearson, M.A., LL.B., F.R.S., Professor of Applied Mathematics and Mechanics, University College, London ; and 7 Well Road, Hampstead, N.W.,

were balloted for and duly elected Fellows of the Society.

The following candidates were proposed for election as Fellows of the Society, the names of the proposers from personal knowledge being appended :—

Walter Sidney Adams, M.A., Solar Observatory, Mount Wilson, California, U.S.A. (proposed by G. E. Hale) ;
Ernest Percival Cotton, Surveyor General and Commissioner of Crown Lands, Lands and Survey Department, Lagos, West Africa (proposed by W. H. Walmsley) ;
Rev. Alex. C. Henderson, B.D., The Manse, Delting, Brae, Shetland, N.B. (proposed by Rev. J. Spence) ;
Rev. Frederick John Jervis-Smith, M.A., F.R.S., M.Inst.E.E., University Lecturer in Mechanics and Millard Lecturer in Engineering and Mechanics, Trinity College, Oxford (proposed by H. H. Turner) ; and
T. Hobart Pritchard, 5 Cotford Road, Thornton Heath, Surrey (proposed by T. W. Brownell).

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Sixty-nine presents were announced as having been received since the last meeting, including, amongst others :—

G. Bigourdan, Les Eclipses de Soleil : instructions sommaires sur les observations que l'on peut faïre pendant les éclipses, presented by the Author ; map of England showing track of total solar eclipse of 1927, presented by Rev. S. J. Johnson.

# *On Hansen's Coefficients for the Inequalities in the Moon's Longitude.* By E. Nevill.

As I have already stated on several occasions during the last ten years, my own calculations have sufficed to confirm the accuracy of the values given by Hansen in the *Darlegung* for the coefficients of the inequalities in the expression for the Moon's longitude derived from the direct perturbing action of the Sun, the difference being seldom more than a few hundredths of a second of arc.

This statement has now been confirmed by the still more complete calculations of Professor Brown (*Monthly Notices*, vol. lxv. p. 276) ; and it follows that the theoretical expression for the disturbing action of the Sun on the normal elliptic motion of the Moon must be held to have been determined with all requisite accuracy.

The differences between the tabular and theoretical values of the coefficients are not sufficient to produce any important discrepancy between the tabular and observed places, as they will seldom much exceed a second of arc, and be in general much smaller.

Hence the existing large discordances between the tabular and observed places of the Moon must be ascribed to some different origin—to the effect of the perturbations of the planets, the figure of the Earth, or some similar cause.

This result is most important, for it clears the field.

For the sake of comparison I give the results that I have derived, reduced with values of the constants which differ but very slightly from those made use of by Newcomb in his transformation of Hansen's theoretical values. They are the results which have been adopted in my investigation of the errors of Hansen's tables now awaiting printing.

They have been compared with :

1. Hansen's theory.
2. Hansen's tables.
3. Brown's theory as brought up to Hansen's data $= B+R$.

The notation is Hansen's : the smaller terms have been generally omitted, and the values carried only to two places of decimals.

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